The Files: Contract No: 915, T.O. 1 28 August 1962

25X1A9a [redacted]

Trip Report - AR-18 Base Station Automatic Receivers

25X1A5a1 [redacted]

1. Project Description:

This task provides for the fabrication of two AR-18 automatic base station receivers. The unit automatically recognizes and receives high speed Tri-phase (1480 wpm) RS-18 field set transmissions. The output is a punched teletype tape at a 1480 wpm rate.

2. Contractual Information:

a. Initial Cost: $146,072 Increase in Scope: $11,604
b. Initiation Date: 1 April 1962
c. Completion Date: 1 December 1962
d. Deliverable Items: 2 each Prototypes

3. Date of Meeting: 1 August 1962

4. Place of Meeting: [redacted] 25X1A

5. Persons Attending:

Agency	Non-Agency
25X1A9a [redacted]	[redacted] 25X1A5a1

6. Contractor's Performance:

a. On Schedule and Expected to Remain So: Yes
b. Within Obligated Funds and Expected to Remain So: Yes
c. Satisfactory Technical Progress: Yes

7. Project Status:

The contractor has completed the design of all modifications to the AR-18 base station receiver. The breadboard tests on the

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new system test simulator has been completed and it has proven to be very reliable and precise. The simulator was changed from an unsatisfactory electro-mechanical commutator to a beam switching tube counter commutator approach. System tests on letter synchronization and the upper case functions have been completed and the overall speed tolerance of the AR-18 is ± 3%. Speed variations of more than ± 3% cause errors due to sampling of the phase detector outputs during the multi-path protection interval. At the ± 3% limits, the letter sync is able to hold synchronization during an 18 pulse fade interval. The upper case circuitry to change the system from a 27 to a 32 level code performs in a very reliable manner. The modifications of the dual diversity receiver using new transistors has been completed and the electrical performance of this unit has been greatly improved. The fabrication of other sub-units of the system is progressing well. The purchase of all remaining components for two deliverable units has been initiated.

Adding automatic encryption, KG-3, provisions in the AR-18 were discussed with the contractor. The contractor did not feel that KG-3 operation would take very much additional circuitry and controls. Therefore, the rack height will be increased by 7" to provide for possible KG-3 addition and later replacement of the present receivers with strip receivers and 444 cycle first order recognition so that one AR-18 could monitor more than one RF channel. It is felt that the space should be added at this time to provide for later modification. Also discussed with the contractor was the possibility of modifying the government furnished AR-18 in accordance with the modifications derived from this program. The contractor was requested to provide a budgetary estimate of the cost to modify the government furnished equipment.

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